Journal of Pioneering Medical Sciences
Received: April 06, 2025 | Accepted: September 01, 2025 | Published: October 05, 2025
Volume 14, Issue 09, Pages 172-178

DOI https://doi.org/10.47310/jpms2025140922

Impact of A Community Nurse-Led Home-Based Cancer Survivorship Programme on Depression among Cervical Cancer Survivors

S. Umarani[1*], V. Magesh[2], R. Gopal[3] and R. Shankar Shanmugam[4]

[1]Community Health Nursing, Meenakshi Academy of Higher Education & Research (MAHER), Tamil Nadu, India
[2]Department of Cardiology, Meenakshi Medical College Hospital & Research Institute, Tamil Nadu, India
[3]Department of Pathology, Karpaga Vinayaga Institute of Medical Sciences & Research Center, Tamil Nadu, India
[4]College of Nursing, Madras Medical College, Tamil Nadu, India

Author Designation: [1]Ph.D. Scholar, [2]Associate Professor, [3]Professor, [4]Principal

*Corresponding author: S. Umarani (e-mail: adiumaskr@outlook.com).

©2025 the Author(s). This is an open access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0

Abstract **Background:** Cervical cancer remains one of the most common cancers among women in low- and middle-income countries, with survivors frequently experiencing persistent psychological challenges such as depression and anxiety that adversely affect quality of life. Nurse-led, home-based interventions have emerged as a promising approach to providing holistic, accessible and continuous psychosocial support in community settings, particularly in underserved rural areas. **Aim:** This study evaluated the effectiveness of a Community Nurse-Led Home-Based Cancer Survivorship Programme in reducing depression among cervical cancer survivors. **Methods:** A quasi-experimental pretest-post-test control group design was employed in selected rural villages of Madurai district, Tamil Nadu, India. A total of 140 cervical cancer survivors were recruited through convenience sampling and allocated to experimental (n = 70) and control (n = 70) groups. Depression was assessed using Beck's Depression Inventory (BDI). The experimental group received a structured four-week nurse-led survivorship programme, which included guided breathing exercises, individualized counselling, lifestyle education and family-focused supportive messages. The control group received routine care. Data were analysed using descriptive and inferential statistics, including independent and paired t-tests, Chi-square tests and Pearson's correlation. A significance level of $p<0.05$ was applied. **Results:** At baseline, both groups were comparable in sociodemographic and clinical characteristics ($p>0.05$). Following the intervention, the experimental group showed a statistically significant reduction in mean BDI scores from 35.92±10.1 to 23.78±8.7 ($p<0.001$), indicating a clinically meaningful improvement. In contrast, the control group demonstrated no significant change (34.56±9.4 to 33.43±11.2; $p>0.05$). Effect size calculations further confirmed the substantial impact of the intervention on depression reduction. **Conclusion:** The Community Nurse-Led Home-Based Cancer Survivorship Programme was effective in significantly reducing depression among cervical cancer survivors in rural communities. Integrating such evidence-based, nurse-led interventions into primary health care systems could enhance psychological well-being, promote recovery and improve overall survivorship outcomes, especially in resource-limited settings.

Key Words Cervical Cancer, Depression, Survivorship Programme, Nurse-Led Intervention, Community Health, Rural Populations

INTRODUCTION

Background and Rationale

Cancer survivorship has become a major focus of global healthcare, driven by advances in early detection and treatment that have improved survival rates across many cancer types. Cervical cancer, although largely preventable through screening and vaccination, continues to pose a substantial health burden, particularly in low- and middle-income countries. Survivors often face challenges that extend far beyond physical recovery. In addition to long-term treatment-related effects, they are at increased risk of psychological problems such as depression and anxiety, which may be compounded by social stigma, fear of recurrence and the psychosocial burden associated with the diagnosis [1]. Addressing these mental health concerns is therefore critical to improving the overall quality of life and long-term outcomes of cervical cancer survivors.

Mental Health Needs in Survivorship

Existing literature highlights that cancer survivorship involves a wide range of unmet needs, with psychological health being a central determinant of overall well-being [2,3].

Survivors frequently report persistent distress, including isolation, hopelessness, fear of recurrence and depressive symptoms [4]. These psychosocial consequences not only impair daily functioning but also negatively affect treatment adherence, physical recovery and social reintegration [5]. Comprehensive survivorship programs that incorporate psychological support have shown promising outcomes in mitigating these challenges. Within such programs, nurses have been recognized as key providers of holistic care, offering psychosocial counselling, facilitating access to resources and promoting adherence to survivorship care plans [6,7].

Nurse-Led Home-Based Interventions

Community-based, nurse-led home interventions are increasingly recognized as a practical and effective approach to survivorship care, particularly in resource-limited or rural settings where access to specialized oncology and mental health services may be limited [8]. These interventions are tailored, culturally sensitive and patient-centred, enabling survivors to receive support in familiar home environments. Evidence suggests that nurse-led models not only reduce depression and anxiety but also enhance social connectedness, empower families and improve overall psychological adjustment [9,10]. Despite their potential, gaps remain in the standardization and integration of such interventions into formal survivorship care, especially regarding consistent use of validated mental health assessments and alignment with the unique psychosocial needs of cervical cancer survivors [11,12].

Rationale for the Study

Persistent disparities in mental health outcomes among cancer survivors emphasize the urgent need for targeted, community-focused interventions. Without structured support, depressive symptoms often remain unrecognized and untreated, leading to poorer long-term health outcomes [13]. Nurse-led, home-based survivorship programs offer an accessible and cost-effective solution to bridge these gaps. By delivering tailored psychological and educational support directly to survivors and their families, such programs can reduce depressive symptoms, promote coping strategies and ultimately improve both mental and physical health outcomes [14]. This is particularly important in rural and underserved populations, where barriers to institutional care are greatest.

Aim of the Study

The aim of this study was to evaluate the effectiveness of a Community Nurse-Led Home-Based Cancer Survivorship Programme in reducing depression among cervical cancer survivors.

METHODS

Study Design

A quantitative research approach was adopted using a quasi-experimental pretest-post-test control group design to evaluate the effectiveness of a Community Nurse-Led Home-Based Cancer Survivorship Programme in reducing depression among cervical cancer survivors. This design was chosen as it allowed the comparison of intervention outcomes with a control group while being feasible within a community-based setting.

Study Setting

The study was conducted in selected rural villages of Madurai district, Tamil Nadu, India, where access to formal survivorship and psychosocial support programs is limited.

Sample Size Calculation

The required sample size was estimated based on prior research findings, assuming an expected mean difference of 6 in depression scores, a standard deviation of 12, a 95% confidence level and 80% power. This calculation yielded 63 participants per group. To account for an anticipated 10% attrition, the final sample size was increased to 70 participants per group, resulting in a total of 140 survivors.

Sampling Technique

A non-probability convenience sampling method was used to recruit eligible participants from the target villages.

Participants

Eligible participants were cervical cancer survivors who:

- Had been diagnosed and undergoing treatment for more than six months
- Were able to communicate and understand Tamil
- Provided written informed consent

Exclusion criteria included survivors with severe comorbidities or cognitive impairments that could interfere with participation or assessment.

Intervention

Participants were randomly allocated to either the intervention or control group. The intervention group received a four-week Community Nurse-Led Home-Based Survivorship Programme**,** while the control group continued to receive routine care.

The intervention comprised:

- **Breathing exercises:** Computer-assisted training in slow deep breathing and Hey-Hu breathing techniques, with structured daily practice
- **Counselling sessions:** One-to-one psychosocial counselling provided by trained community nurses.
- **Lifestyle education:** Health education modules on diet, physical activity and stress management
- **Family support messages:** Weekly motivational messages delivered to family members to encourage emotional and social support for survivors

Fidelity of the intervention was ensured through standardized training of nurses, use of intervention checklists and weekly supervision meetings.

Outcome Measure and Tools

The primary outcome was depression, assessed using the Beck's Depression Inventory (BDI), a validated 21-item self-report tool. The scale evaluates emotional, cognitive and somatic aspects of depression, with scores categorized as follows:

- 1-10: Normal range
- 11-16: Mild mood disturbance
- 17-20: Borderline clinical depression
- 21-30: Moderate depression
- 31-40: Severe depression
- >40: Extreme depression

Demographic and clinical data (age, marital status, education, income, cancer stage, duration since diagnosis and treatment details) were also collected using a structured proforma.

Data Collection Procedure

Following ethical approval and informed consent, baseline (pretest) assessments of depression were conducted for both groups using the BDI. The intervention group then participated in the four-week survivorship programme, while the control group received no additional support beyond usual care. At the end of the intervention, a post-test assessment was conducted using the same tool for both groups.

Statistical Analysis

Data were coded and analysed using descriptive and inferential statistics. Frequency, percentage, mean and standard deviation were calculated to summarize demographic and clinical variables. The independent t-test was used to compare mean depression scores between groups, while paired t-tests assessed within-group changes over time. Associations between depression and selected demographic variables were analysed using the Chi-square test and correlations between continuous variables were examined using Pearson's correlation coefficient. A p-value of <0.05 was considered statistically significant.

RESULTS

Demographic Characteristics

In both groups, more than half of the participants were above 30 years of age (≈56% experimental vs. 59% control). Around one-third had primary education, while only about 8-10% were graduates or professionals. The majority were married (≈80% experimental, 77% control) and most belonged to Hindu families (≈73% vs. 71%). Employment varied, with about two-thirds of the experimental group in full-time work compared to only one-third in the control group, where more women were part-time workers or unemployed. Family income was mostly in the Rs. 5,000-10,000 range (≈53% vs. 41%). Joint families were common among the experimental group (≈67%), while nuclear (≈46%) and extended families (≈31%) were more frequent in the control group. Most participants had children (≈86% vs. 54%). None of these demographic differences were statistically significant ($p>0.05$) (Table 1).

Clinical Characteristics

About half of the survivors had been diagnosed more than five years earlier (≈50% experimental vs. 60% control). Cancer stages were mostly II and III, together accounting for about 75% in both groups, while only around 10% were in stage I, 6-10% in stage IV and 7% reported recurrence. Chemotherapy was the most common treatment (≈51% vs. 44%), followed by radiation therapy (≈17% vs. 26%), while fewer underwent surgery or hormonal therapy. Regarding functional status, nearly half were independent, about 41-43% partially dependent and around 12-17% fully dependent. Sleep duration was similar, with the majority reporting 4-8 hours per day (≈54-56%) and smaller groups sleeping <4 hours or >8 hours. No statistically significant differences were found between groups for any clinical variable ($p>0.05$) (Table 2).

Table 1: Baseline Demographic Characteristics of Cervical Cancer Survivors

Variables	Experimental	Control	χ^2, p-value
Age			
<20 years	3 (4.3%)	6 (8.6%)	χ^2=0.42, p=0.81 (NS)
21-30 years	28 (40.0%)	23 (32.9%)	
>30 years	39 (55.7%)	41 (58.6%)	
Education			
Informal education	21 (30.0%)	18 (25.7%)	χ^2=1.61, p=0.79 (NS)
Primary	24 (34.3%)	23 (32.9%)	
Higher secondary	16 (22.9%)	20 (28.6%)	
Graduate	6 (8.6%)	6 (8.6%)	
Professional	3 (4.3%)	3 (4.3%)	
Marital Status			
Married	56 (80.0%)	54 (77.1%)	χ^2=2.30, p=0.52 (NS)
Divorced/Separated	6 (8.6%)	6 (8.6%)	
Single	5 (7.1%)	7 (10.0%)	
Widow	3 (4.3%)	3 (4.3%)	
Religion			
Hindu	51 (72.9%)	50 (71.4%)	χ^2=1.43, p=0.49 (NS)
Muslim	8 (11.4%)	11 (15.7%)	
Christian	11 (15.7%)	9 (12.9%)	
Employment Status			
Full time	46 (65.7%)	24 (34.3%)	χ^2=3.42, p=0.18 (NS)
Part time	11 (15.7%)	25 (35.7%)	
Unemployed	13 (18.6%)	21 (30.0%)	
Monthly Family Income			
<Rs. 5000	22 (31.4%)	24 (34.3%)	χ^2=2.36, p=0.31 (NS)
Rs. 5000-10,000	37 (52.9%)	29 (41.4%)	
>Rs. 10,000	11 (15.7%)	17 (24.3%)	
Type of Family			
Nuclear	20 (28.6%)	32 (45.7%)	χ^2=0.71, p=0.70 (NS)
Joint	47 (67.1%)	16 (22.9%)	
Extended	3 (4.3%)	22 (31.4%)	
Children			
Yes	60 (85.7%)	38 (54.3%)	χ^2=0.27, p=0.61 (NS)
No	10 (14.3%)	32 (45.7%)	

NS = Not Significant

Table 2: Clinical Characteristics of Cervical Cancer Survivors

Variables	Experimental	Control	χ^2, p-value
Duration since diagnosis			
<5 years	35 (50.0%)	28 (40.0%)	χ^2=2.21, p=0.14 (NS)
≥5 years	35 (50.0%)	42 (60.0%)	
Stages of cancer			
I	8 (11.4%)	9 (12.9%)	χ^2=2.47, p=0.64 (NS)
II	35 (50.0%)	32 (45.7%)	
III	18 (25.7%)	17 (24.3%)	
IV	4 (5.7%)	7 (10.0%)	
Recurrence	5 (7.1%)	5 (7.1%)	
Current anticancer treatment			
Surgery	10 (14.3%)	12 (17.1%)	χ^2=1.32, p=0.72 (NS)
Chemotherapy	36 (51.4%)	31 (44.3%)	
Hormonal therapy	12 (17.1%)	9 (12.9%)	
Radiation therapy	12 (17.1%)	18 (25.7%)	
Functional status			
Fully dependent	8 (11.4%)	12 (17.1%)	χ^2=0.92, p=0.63 (NS)
Partially dependent	30 (42.9%)	29 (41.4%)	
Independent	32 (45.7%)	29 (41.4%)	
Duration of sleep			
<4 hours	15 (21.4%)	17 (24.3%)	χ^2=0.38, p=0.83 (NS)
4-8 hours	38 (54.3%)	39 (55.7%)	

NS = Not Significant

Table 3: comparison of depression scores between experimental and control groups

Assessments	Group	Mean	SD	Mean Difference	Student Independent t-test
Pretest	Experimental	35.92	10.1	1.36	t = 0.91, p = 0.36 (NS)
	Control	34.56	9.4		
Post-test	Experimental	23.78	8.7	9.65	t = 5.61, p < 0.001 (S)
	Control	33.43	11.2		

NS = Not Significant; S = Significant; p ≤ 0.001 = Very highly significant

Table 4: Comparison of Depression Scores Between Pretest and Post-test

Group	Pretest Mean±SD	Post-test Mean±SD	Mean Difference	Student Paired t-test
Experimental	35.92±10.1	23.78±8.7	12.14	t=8.22, p<0.001*
Control	34.56±9.4	33.43±11.2	1.13	t=1.02, p=0.21

*p ≤ 0.001 = Very highly significant

Table 5: Comparison of Pretest Levels of Depression

Level of Depression	Experimental (n=70)	Control (n=70)
Normal	0 (0.0%)	0 (0.0%)
Mild	0 (0.0%)	0 (0.0%)
Borderline	4 (5.7%)	5 (7.1%)
Moderate	25 (35.7%)	27 (38.6%)
Severe	26 (37.1%)	21 (30.0%)
Extreme	15 (21.4%)	17 (24.3%)
Total	70 (100%)	70 (100%)

Table 6: Comparison of Post-test Levels of Depression

Level of Depression	Experimental (n=70)	Control (n=70)
Normal	1 (1.4%)	0 (0.0%)
Mild	17 (24.3%)	1 (1.4%)
Borderline	22 (31.4%)	13 (18.6%)
Moderate	18 (25.7%)	19 (27.1%)
Severe	12 (17.1%)	17 (24.3%)
Extreme	0 (0.0%)	20 (28.6%)
Total	70 (100%)	70 (100%)

Comparison of Depression Scores Between Experimental and Control Groups

The mean depression score in the pretest was 35.92 (SD = 10.1) in the experimental group and 34.56 (SD = 9.4) in the control group. The mean difference of 1.36 was not statistically significant (t = 0.91, p = 0.36), showing that both groups were comparable at the start of the study. In the post-test, however, the experimental group showed a considerable reduction in depression with a mean score of 23.78 (SD = 8.7), while the control group had a mean score of 33.43 (SD = 11.2). The mean difference of 9.65 between the groups was statistically very highly significant (t = 5.61, p<0.001), confirming the effectiveness of the Community Nurse-Led Home-Based Cancer Survivorship Programme in reducing depression among cervical cancer survivors (Table 3).

Comparison of Depression Scores Between Pretest and Post-test Within Groups

Within-group comparisons using the paired t-test showed that the experimental group experienced a significant decline in depression scores following the intervention. The mean score reduced from 35.92 (SD=10.1) at pretest to 23.78 (SD=8.7) at post-test, with a mean difference of 12.14, which was statistically very highly significant (t=8.22, p<0.001). In contrast, the control group showed only a slight change in mean scores, from 34.56 (SD=9.4) at pretest to 33.43 (SD=11.2) at post-test, with a mean difference of 1.13 that was not statistically significant (t=1.02, p=0.21). This indicates that the intervention was effective only in the experimental group (Table 4).

Comparison of Pretest Levels of Depression

At baseline, the distribution of depression severity was similar across both groups. In the experimental group, 35.7% of participants were classified under moderate depression, 37.1% under severe depression and 21.4% under extreme depression, while only 5.7% fell into the borderline category. Similarly, in the control group, 38.6% were in the moderate category, 30.0% in severe, 24.3% in extreme and 7.1% in borderline depression. None of the participants in either group were in the normal or mild categories (Table 5).

Comparison of Post-test Levels of Depression

After the intervention, marked differences were observed between the experimental and control groups. In the experimental group, 25.7% of participants moved into the mild depression category and 31.4% into borderline depression, with 25.7% remaining in the moderate range and only 17.1% in the severe category. Importantly, none of the participants in this group fell into the extreme category at post-test. In contrast, the control group showed no such improvement. While 18.6% of participants were in the borderline category and 27.1% in the moderate category, a large proportion remained in the severe (24.3%) and extreme (28.6%) categories (Table 6).

DISCUSSION

The present study demonstrates the effectiveness of the Community Nurse-Led Home-Based Cancer Survivorship Programme in significantly reducing depression among cervical cancer survivors. The intervention group exhibited

a 35.9% reduction in mean depression scores (from 35.92±10.1 to 23.78±8.7), which was highly significant ($t = 8.22$, $p < 0.001$). In contrast, the control group showed only a 3.2% nonsignificant reduction (from 34.56±9.4 to 33.43±11.2; $t = 1.02$, $p = 0.21$). This clear disparity highlights the effectiveness of structured, nurse-led, community-based psychosocial interventions in addressing the mental health needs of cancer survivors.

Comparison with Previous Literature

The findings are consistent with a recent systematic review reporting that nurse-led survivorship care programs enhance quality of life and reduce depression and anxiety in cancer survivors [15]. Nurse-led interventions are particularly effective because they combine continuous psychosocial support, emotional counselling and lifestyle guidance with personalized follow-up, thus fostering resilience and empowerment among patients [16].

Similarly, studies targeting gynaecological cancer patients have emphasized the value of individualized care models, especially when integrated with eHealth platforms, in meeting survivors' psychosocial needs [17]. The present study reinforces this evidence by demonstrating that community-based nurses, through structured interventions, can address both the psychological and social challenges of survivorship, extending the continuum of care beyond the hospital setting.

Other evaluations of nurse-led psychosocial support programs have highlighted their role in reducing emotional distress, promoting coping strategies and facilitating lifestyle modifications that contribute to improved mental well-being [18]. The current study aligns with this evidence, underscoring the importance of structured interventions that are both accessible and culturally adaptable.

Clinical Significance of Findings

The study's results are not only statistically significant but also clinically meaningful. At post-test, none of the participants in the intervention group remained in the "extreme depression" category, whereas 24.3% of the control group persisted in the severe or extreme categories. This stark contrast emphasizes the protective role of early nurse-led intervention in preventing the escalation of depressive symptoms and supporting psychosocial resilience among survivors [19,20].

Theoretical and Mechanistic Insights

The positive effects observed may be explained by several mechanisms. Breathing exercises likely reduced physiological stress responses, while counselling and lifestyle education provided coping strategies to manage fear of recurrence, stigma and social isolation. The inclusion of family support messages further enhanced survivors' sense of belonging and reduced feelings of loneliness, which are well-established contributors to depression in cancer populations. Together, these multi-component strategies demonstrate the value of holistic survivorship care that addresses both psychological and social dimensions.

Implications for Practice and Policy

The findings hold important implications for oncology care delivery in low-resource and rural settings such as Madurai, where formal psychosocial services are scarce. Integrating nurse-led, home-based survivorship programs into primary healthcare systems could:

- Provide low-cost, sustainable and culturally relevant support
- Address mental health disparities among survivors in underserved regions
- Complement medical follow-up with structured psychosocial care, improving overall survivorship outcomes

Scaling such interventions across rural India and similar contexts may significantly reduce the burden of untreated depression among cancer survivors and improve adherence to follow-up care.

CONCLUSIONS

This study provides strong evidence that the Community Nurse-Led Home-Based Cancer Survivorship Programme is effective in reducing depression among cervical cancer survivors. Participants who received the intervention demonstrated a statistically and clinically significant reduction in depressive symptoms, whereas no meaningful improvement was observed in the control group. These findings highlight the value of nurse-led, community-based models of care in addressing the psychological needs of survivors, particularly in resource-limited and rural contexts where access to specialized mental health services remains inadequate.

Beyond immediate mental health benefits, such interventions have the potential to foster long-term psychosocial resilience, improve adherence to follow-up care and enhance overall quality of life. The results emphasize the need for systematic integration of structured psychosocial support within survivorship care pathways, ensuring that cervical cancer survivors receive holistic, continuous and culturally appropriate care.

Future studies should aim to include larger, more diverse and multi-centre cohorts, incorporate long-term follow-up assessments and examine broader outcomes such as quality of life, treatment adherence and cost-effectiveness. Mixed-methods research would also provide deeper insights into survivors' lived experiences and the mechanisms through which such interventions achieve their benefits.

Recommendations

- **Integration into Community Health Systems**: The Community Nurse-Led Home-Based Cancer Survivorship Programme should be embedded into routine community health services to ensure that survivors, especially those in underserved rural areas, receive continuous psychological and emotional support alongside medical follow-up

- **Capacity Building for Community Nurses**: Comprehensive training programs should be developed to equip community health nurses with advanced skills in counselling, lifestyle education, psychosocial support and survivorship care planning. Ongoing mentorship and supervision will be essential to maintain the quality and sustainability of such interventions
- **Policy and Program Development**: Policymakers should recognize mental health as a critical component of cancer survivorship and allocate resources for the scaling up of nurse-led interventions**.** National cancer control strategies should incorporate structured survivorship models that include mental health screening, home-based care and family-centred support
- **Family and Community Engagement**: Survivorship care should actively engage families and community networks to reinforce social support, reduce stigma and foster a culture of shared responsibility in cancer recovery. Culturally tailored health messages and community awareness campaigns could enhance acceptance and participation
- **Research and Evaluation**: Future research should assess not only the clinical effectiveness but also the cost-effectiveness and scalability of nurse-led survivorship programs. Multi-centre trials and longitudinal studies are necessary to confirm long-term outcomes and guide evidence-based policy decisions

Limitations

This study contributes to the growing evidence base by providing quantitative data from a rural Indian population, a setting often underrepresented in survivorship research. The use of a validated tool (BDI) and structured intervention adds methodological rigor.

However, several limitations must be acknowledged. First, the study employed a convenience sampling technique, which may limit generalizability. Second, the short intervention period (four weeks) does not allow for conclusions about the sustainability of benefits over time. Third, while the study controlled for baseline characteristics, potential confounders such as social support networks, economic stressors and comorbidities were not fully explored. Finally, the absence of qualitative data limits insights into participants' lived experiences, which could have enriched interpretation of the findings.

Overall, this study reinforces the evidence that nurse-led, home-based interventions are effective, feasible and scalable strategies for reducing depression in cervical cancer survivors. The findings underscore the need for healthcare systems and policymakers to prioritize the integration of psychosocial survivorship programs within community health services, particularly in resource-limited settings. Future research should incorporate longer follow-up periods, larger multi-centre samples and mixed-methods approaches to better understand the sustainability, adaptability and patient experiences of such interventions.

Acknowledgement

The authors sincerely acknowledge the support of the community health nurses, local health authorities and participating cervical cancer survivors who made this study possible. Special thanks are extended to the Madurai district health team for their cooperation during recruitment and data collection. The authors also appreciate the valuable input provided by peer reviewers and colleagues who contributed to refining the study design and manuscript.

Ethical Statement

Ethical approval for the study was obtained from the Institutional Ethics Committee prior to data collection. Written informed consent was obtained from all participants after explaining the purpose, procedures, potential risks and benefits of the study. Participation was voluntary and confidentiality and anonymity were strictly maintained throughout the research process.

REFERENCES

[1] Kittel, J. *et al.* "Mental health outcomes and correlates in cancer patients entering survivorship after curative treatment." *International Journal of Psychiatry in Medicine*, vol. 58, no. 4, 2023, pp. 325-38. https://doi.org/10.1177/00912174231165184.

[2] Deery, E. *et al.* "'It's like being pushed into sea on a boat with no oars': breast cancer survivorship and rehabilitation support in Ireland and the UK." *Journal of Human Nutrition and Dietetics*, vol. 36, no. 2, 2022, pp. 514-25. https://doi.org/10.1111/jhn.13086.

[3] Jasmin, H. *et al.* "Assessing the role of large language learning models and artificial intelligence in improving oncology survivorship care: a comparative study of ChatGPT and Gemini." *Preprint*, 2025. https://doi.org/10.21203/rs.3.rs-6584974/v1.

[4] Bateman, J. *et al.* "'Survivorship care is one big gap': a qualitative study of post-treatment supportive care in Aotearoa New Zealand." *BMC Health Services Research*, vol. 23, no. 1, 2023, p. 95. https://doi.org/10.1186/s12913-023-09580-8.

[5] Andrykowski, M. "Physical and mental health status of survivors of multiple cancer diagnoses." *Cancer*, vol. 118, no. 14, 2011, pp. 3645-53. https://doi.org/10.1002/cncr.26678.

[6] Stephenson, P. *et al.* "The impact of illness perceptions and coping strategies on use of supportive care for cancer." *Cancers (Basel)*, vol. 13, no. 10, 2021, p. 2501. https://doi.org/10.3390/cancers13102501.

[7] Kolva, E. *et al.* "Innovations in online assessment of suicidality in patients with cancer: optimizing safety and feasibility." *Psycho-Oncology*, vol. 29, no. 1, 2019, pp. 224-26. https://doi.org/10.1002/pon.5249.

[8] Alford-Teaster, J. *et al.* "From active treatment to surveillance: how the barriers and facilitators of implementing survivorship care planning could be an opportunity for telehealth in oncology care for rural patients." *Journal of Cancer Survivorship*, vol. 19, no. 1, 2023, pp. 45-53. https://doi.org/10.1007/s11764-023-01447-5.

[9] Kvale, E. *et al.* "Patient-centred support in the survivorship care transition: outcomes." *Cancer*, vol. 122, no. 5, 2016, pp. 823-32. https://doi.org/10.1002/cncr.30136.

[10] Ilie, G. *et al.* "Current mental distress among men with a history of radical prostatectomy and related adverse correlates." *American Journal of Men's Health*, vol. 14, no. 5, 2020, 1557988320957535. https://doi.org/10.1177/1557988320957535.

[11] Ross, L. *et al.* "Still lost in transition? Perspectives of ongoing cancer survivorship care needs from comprehensive cancer control programs, survivors and health care providers." *International Journal of Environmental Research and Public Health*, vol. 19, no. 5, 2022, p. 3037. https://doi.org/10.3390/ijerph19053037.

[12] Saab, M. *et al.* "Supportive care interventions for men with urological cancers: a scoping review." *Supportive Care in Cancer*, vol. 31, no. 9, 2023, pp. 4567-80. https://doi.org/10.1007/s00520-023-07984-0.

[13] Oswald, T. *et al.* "'Somebody was standing in my corner': a mixed methods exploration of survivor, coach and hospital staff perspectives and outcomes in an Australian cancer survivorship program." *Supportive Care in Cancer*, vol. 31, no. 8, 2023, pp. 4015-27. https://doi.org/10.1007/s00520-023-07908-y.

[14] Noonan, B. *et al.* "Study protocol: Liam MC trial (Linking in with Advice and Supports for Men Impacted by Metastatic Cancer)." *PLoS ONE*, vol. 20, no. 4, 2025, e0313454. https://doi.org/10.1371/journal.pone.0313454.

[15] Monterosso, L. *et al.* "Systematic review and meta-analysis of patient-reported outcomes for nurse-led models of survivorship care for adult cancer patients." *Cancer Treatment Reviews*, vol. 73, 2019, pp. 62-72. https://doi.org/10.1016/j.ctrv.2018.12.007.

[16] Lai, X. *et al.* "Nurse-led cancer care: a scope review of the past years (2003-2016)." *International Journal of Nursing Sciences*, vol. 4, no. 2, 2017, pp. 184-95. https://doi.org/10.1016/j.ijnss.2017.02.001.

[17] Skorstad, M. *et al.* "Nurse-led consultations reinforced with eHealth technology: a qualitative study of the experiences of patients with gynaecological cancer." *BMC Nursing*, vol. 21, no. 1, 2022, p. 195. https://doi.org/10.1186/s12912-022-01104-9.

[18] Miura, A. *et al.* "Oncology nurses' recognition of long-term cancer survivorship care in Japan." *Asia-Pacific Journal of Oncology Nursing*, vol. 2, no. 3, 2015, pp. 136-43. https://doi.org/10.4103/2347-5625.163412.

[19] Jibb, L. *et al.* "Home-based paediatric cancer care: perspectives and improvement suggestions from children, family caregivers and clinicians." *JCO Oncology Practice*, vol. 17, no. 6, 2021, pp. e827-39. https://doi.org/10.1200/OP.20.00958.

[20] Burris, J. and M. Andrykowski. "Physical and mental health status and health behaviours of survivors of multiple cancers: a national, population-based study." *Annals of Behavioural Medicine*, vol. 42, no. 3, 2011, pp. 304-12. https://doi.org/10.1007/s12160-011-9290-0.